UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/AC.105/PV.372
29 June 1992

ENGLISH

COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORD OF THE 372nd MEETING

Held at Headquarters, New York,
on Friday, 19 June 1992, at 10.30 a.m.

Chairman:	Mr. MUNTEANU (Vice-Chairman)	(Romania)
later:	Mr. HOHENFELLNER (Chairman)	(Austria)

- Organization of work
- Report of the Scientific and Technical Subcommittee on the work of its twenty-ninth session (continued)
- Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space

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In the absence of the Chairman, Mr. Munteanu (Romania), Vice-Chairman, took the Chair.

The meeting was called to order at 10.50 a.m.

ORGANIZATION OF WORK

The CHAIRMAN: The Committee will continue today its consideration of agenda item 7, Report of the Scientific and Technical Subcommittee on the work of its twenty-ninth session and item 9, Implementation of the recommendations of UNISPACE 82. I should like to inform the Committee that it is the Chair's intention to begin consideration of agenda item 8, Report of the Legal Subcommittee on the work of its thirty-first session, on Monday morning, as soon as we have concluded our list of speakers for agenda items 7 and 9. I would urge those wishing to speak on agenda item 8 to inscribe their names on the list of speakers as soon as possible.

REPORT OF THE SCIENTIFIC AND TECHNICAL SUBCOMMITTEE ON THE WORK OF ITS TWENTY-NINTH SESSION (A/AC.105/513)(continued)

IMPLEMENTATION OF THE RECOMMENDATIONS OF THE SECOND UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE

Mr. RIBEIRO (Brazil): My delegation wishes to thank the Expert on Space Applications for the thorough and useful statement he delivered yesterday on the ongoing and future activities of the Space Applications Programme. In particular, my delegation has taken note of the remarks on the evaluation Mission that has just been sent to those countries interested in hosting the Centre for Space Science and Technology Education for Latin America and the Caribbean. My delegation looks forward to receiving a follow-up report in the near future.

We are convinced that the initiative constitutes an important step in the enhancement of the indigenous capacity of developing countries through a

(Mr. Ribeiro, Brazil)

regional approach. My delegation considers that such regional initiatives are to be welcomed, particularly when these activities are aimed at strengthening international cooperation on an equitable and non-discriminatory basis through commitments that are mutually acceptable to all parties concerned. Like other delegations from Latin America, my delegation welcomes the Chilean initiative to host the Second Space Conference of the Americas, in the footsteps of the Conference held in San Jose in 1990. The results of the Costa Rica meeting are being carefully examined by space experts in Brazil and should constitute a useful reference for the objectives to be aimed at in Chile. We therefore reiterate our interest as expressed in the report of the thirty-fourth session of this Committee in Graz and contained in the relevant paragraph of resolution 46/45. We look forward with interest to the consultations to be carried out by the Chilean Government on the scope, objectives and agenda of the proposed conference.

Finally, my delegation would like to underscore once again the importance it attaches to the furtherance of international cooperation in space activities at the bilateral, regional and multilateral levels by means of transparent, equitable and mutually beneficial access to space benefits and technologies for the promotion of the socio-economic development of all nations.

Ms. ZHENG Lizhong (China) (interpretation from Chinese): Mr. Chairman, the Chinese delegation wishes, through you, to pay tribute to Professor Carver, under whose chairmanship the Scientific and Technical Subcommittee did fruitful work at its twenty-ninth session and made good progress in the consideration of its agenda. We take this opportunity to commend that achievement.

(Ms. Zheng Lizhong, China)

In this International Space Year, which was proclaimed by the General Assembly at its forty-fourth session, and in the tenth anniversary year of UNISPACE II, the Chinese delegation would like to express great appreciation to the United Nations bodies that have effectively promoted the Space Applications Programme. Through the 18 long-term scholarships provided by various countries and international organizations, the Programme was able in the year under review to afford training opportunities to personnel from developing countries; it also co-sponsored seven workshops in space technology applications. These activities have unquestionably played a positive part in enabling developing countries to share in the benefits of space technology, acquire relevant experience and develop their expertise.

In its consistent support of the Space Applications Programme, the Chinese Government contributed two fellowships of one-year terms to the Programme in 1991 and by way of a contribution in kind, hosted in September 1991 in Beijing, under the auspices of the Economic and Social Commission for Asia and the Pacific (ESCAP) and the United Nations Disaster Relief Organization (UNDRO), the Workshop on the Application of Space Techniques to Combat Natural Disasters. The Workshop was attended by 72 representatives from 21 countries and international organizations, who reviewed the range of space techniques capable of helping developing countries combat sudden and unforeseen natural disasters; also considered were ground systems and geographical information systems that need to be developed to monitor and assess the changes and damage caused by natural disasters. The results of the Workshop have been published in document A/AC.105/494.

The Chinese delegation would like to take this opportunity to announce China's two new initiatives in support of the Space Applications Programme: six one-year fellowships in 1992 for developing countries in remote sensing,

(Ms. Zheng Lizhong, China)

cartography and geodesy; and $30,000 in cash to support activities of the Space Applications Programme and the International Space Year (ISY).

China supports the proposed regional education centres for space science and technology, and is ready to make the necessary contribution to hosting such a centre.

The Scientific and Technical Subcommittee has aptly highlighted for 1992 the theme of "Space Technology and the Protection of the Global Environment: Development of the Indigenous Capabilities of Countries, particularly of the Developing Countries in connection with the ISY".

(Ms. Zheng Lizhong, China)

The serious pollution of the global environment caused by excessive industrialization, droughts, soil erosion, desertification and the frequency of other natural disasters are now posing a grave threat to human survival and social and economic development. China has in recent years adopted space and aerial remote-sensing techniques in combination with other means to survey and map soil erosion in its country, and drawn up a soil-erosion map of the entire national territory on a scale of 1:2,500,000, and a map on a scale of 1:400,000 showing the distribution of deserts in North China. We believe that science and technology have advanced to the stage where space technology is poised to make a more substantial contribution to the protection of our global environment and the economic and social development of the developing countries.

The Scientific and Technical Subcommitee's special theme for 1993, namely "Space-based communication: the expansion of current services and increased understanding of new systems and the services they will make possible" is welcome to us. Communications are the prime mover of economic development in the developing countries. Satellite communications play a special and irreplaceable role in China because of our country's vast territory and complex topography. Satellite communications have become a major and reliable medium for China's international communications, which currently connect us to 46 countries and regions on five continents, and through relay to over 150 countries and regions all over the world. Before 1995, China plans to establish 19 surface stations with antennas over 13 meters in diameter as regional communications centres, laying the foundation of a nationwide long-distance satellite communications network. China will use very small aperture terminal technology to tackle communications problems in the autonomous region of Tibet and other remote areas, with a view to considerably

(Ms. Zheng Lizhong, China)

promoting economic and social development in China's remote and minority regions.

In recent years, China has made use of space and aerial remote-sensing technology, including satellite and airborne synthetic aperture radar technology, supplemented by satellite communications and geographic information systems, to confront the various kinds of natural disasters it tends to suffer, an effort that contributed greatly to fighting against the devastating flood of 1991 by providing forecasting and timely communications and thereby reducing losses. We are now in the process of building a national real-time remote-sensing disaster-monitoring and assessing system, as well as developing space-borne synthetic aperture radar for the next generation of all-weather remote-sensing satellites.

China is also successfully using satellite communications to provide televised education that can reach the most distant areas, in order to improve the standards and occupational skills of its population. Throughout the country, there are now over 30,000 satellite television-receiving stations. Two satellite transponders daily transmit 30 hours of educational programming that includes teacher training for secondary and primary schools, agricultural technology, televised university and high-school equivalency and vocational training curricula, and continuing education. Of these programmes, teacher training alone saves several billion yuan for the State budget each year. Telephone and telegram services, as well as data transmission, are also carried out by satellite communications.

Satellite communications is a new technology that is highly practical and widely applicable. It is our hope that the competent United Nations agencies will provide the developing countries with more new systems and useful technologies that are technically simple, inexpensive, and easy to

(Mrs. Zheng Lizhong, China)

master and to extend. China is willing to take the opportunity provided by the Programme on Space Applications to share its experiences with other countries. It also hopes to obtain more help from the international community in the use and development of satellite communications and in personnel training.

The problem of the pollution of outer space by space debris is becoming a growing concern for the astronautical and international communities. Outer space is a valuable natural resources that is the common heritage of mankind. To control and reduce space debris and protect outer space is an aspiration we all share, and the Chinese Government is very concerned about the issue. Some initial research has already been done by Chinese experts, whose report is contained in document A/AC.105/510/Add.1. We support the inclusion of an item on space debris on the agenda of the Subcommittee.

The year 1991 witnessed many spectacular achievements in space technology and space exploration - the successful launches of the European Remote Sensing Satellite (ERS-1), of Japan's Earth Resource Satellite (JERS-1), and of the former Soviet Union's ALMAZ satellite, all of which provide mankind with valuable radar data. The Chinese Government has made astronautics one of the priorities in its development of high technology. We are focusing on such application satellites as communications satellites, meteorological satellites, resource satellites, and recoverable satellites with a view to accelerating our economic and cultural development. In the next six months, China will use its CZ-2E launch vehicle to launch two communications satellites for Australia, and its CZ-2 launch vehicle to launch its thirteenth recoverable remote-sensing satellite, piggy-backing a Swedish telecommunications satellite. In the recoverable capsule of the recoverable satellite, experiments on the growth of relatively large-size gallium arsenide

(Ms. Zheng Lizhong, China)

crystals will be carried out, as well as experiments on plant seeds and species.

China values international cooperation with more countries and international organizations on the basis of equality and mutual benefit. Joint exploration and peaceful uses of outer space is a fundamental policy in China's development of space science and technology. It is also an important component in China's reform and opening up, a policy that we will continue to adhere to in the future.

In concluding, I should like to commend Dr. Abiodun, the United Nations Expert on Space Applications, for his efforts in promoting the Programme on Space Applications. I should also like to thank the secretariat of the Committee for the work it has done.

Mr. CHANDRASEKHAR (India): Our delegation would like to make a few remarks on the work of the Scientific and Technical Subcommittee at its twenty-ninth session and also on the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82).

The Subcommittee had a very extensive range of topics at its twenty-ninth session, and a considerable exchange of information through several scientific and technological presentions. Also, further understanding was achieved through the work of the two Working Groups. We note with appreciation that the special meeting organized to celebrate International Space Year and the Symposium on the chosen theme "Space technology and the protection of the Earth's environment" included several interesting presentations and discussions by distinguished persons and experts. We would like to place on record our appreciation and gratitude to the Committee on Space Research, the

(Mr. Chandrasekhar, India)

International Astronautical Federation, and the United Nations Secretariat for their support and to the speakers for their excellent efforts.

We note that the Working Group on nuclear power sources, which was reconvened at the last session of the Scientific and Technical Subcommittee, considered various outstanding questions in the light of the proposal for revising principle 3, which deals with guidelines and criteria for safe use. The deliberations have been useful in working towards solutions for early finalization of the total set of draft principles. We draw particular attention to the draft text for the preamble, and in this connection to a working paper generated by a number of delegations, including our own, which attempted to take care of the concerns of various delegations on this question. We note with satisfaction that this served as a useful basis for further discussions on nuclear power sources in the Legal Subcommittee.

(Mr. Chandrasekhar, India)

We stress the urgent need to finalize the draft principles, bearing in mind the enormous amount of work that has already been carried out. We consider that the Scientific and Technical Subcommittee could in future devote its attention to examining the scientific and technical aspects of various questions, such as the use of nuclear propulsion and so forth, which were raised at past sessions.

Our delegation reaffirms the importance of the United Nations Programme on Space Applications and of the contributions it has been making to assisting all nations, particularly developing countries, in spreading space applications more widely and in promoting greater cooperation. While supporting the Programme in the form recommended by the Scientific and Technical Subcommittee for the years to come, we should also like to emphasize the need for additional support to be given to it. We should like to place on record our appreciation for the efforts of the Secretariat and the Expert on Space Applications in their able implementation of the Programme.

We note with appreciation the efforts undertaken by the United Nations Office for Outer Space Affairs to establish Centres for Space Science and Technology Education in developing regions. We reiterate that, particularly taking into account the resource constraints of developing nations, the incremental financial resources required for the Centres should be made available through international institutions to fund the development efforts and facilitate the early establishment of the Centres.

If the implementation of the recommendations of UNISPACE 82 is to receive further impetus, it will be necessary to diversify the space applications programme further, for example, by facilitating the implementation in developing nations of certain hardware and software development projects, with space applications or space spin-offs in mind.

(Mr. Chandrasekhar, India)

In addition, there is a need for further growth in space information services. This would indeed call for additional resources to be placed at the disposal of the Office for Outer Space Affairs, but any additional activities could be considered on the basis that they would take place in a phased manner or project by project. We have a very good example of this in the assistance for International Year Space provided to the Office by the Government of Japan. This kind of assistance, if made available on a larger scale by various member nations, could assist in strengthening the Programme.

During the last session of the Scientific and Technical Subcommittee, a comprehensive review of the implementation of the recommendations of UNISPACE 82 was carried out by the Working Group. We also note in this connection, with appreciation, various background papers submitted by international organizations, including the United Nations and its specialized agencies, regarding the status of that implementation. We stress the urgent need to devote the Committee's attention to the various conclusions and recommendations of the Working Group; we draw particular attention to the need it expressed for additional financial support to be given to strengthening the Programme on Space Applications programme further and to ensuring the availability of timely assistance for the development of indigenous capabilities in the developing countries for the pursuit of beneficial space activities.

In regard to the implementation of UNISPACE 82 and the promotion of cooperation in space applications, India continues to take an interest, and to render support through its programme of assistance in training in space applications for other developing countries. India has a policy of making data from its satellites, such as the India Remote Sensing Satellite (IRS), available, and of supporting the United Nations and other forums, such as the

(Mr. Chandrasekhar, India)

International Astronautical Federation and the Committee on Space Research, for organizing programmes for the benefit of developing countries. Also, India is keenly interested in promoting regional cooperation, and participates actively in, and gives support to, various regional agencies and institutions engaged in the field of space applications.

In the context of International Space Year, we note with appreciation the various activities undertaken by the United Nations. We consider that these will assist in bringing the focus of attention onto the useful role of space in the protection of the environment and the promotion of further international cooperation. We have seen considerable interaction between various space agencies and international bodies in planning and conducting activities in a cooperative manner, and this spirit will be an important factor for the growth we envisage in international cooperation in the field of the peaceful uses of outer space, and particularly for encouraging wider participation by the large number of nations which are yet to benefit fully from space activities. We strongly urge that the United Nations actively encourage the continuation of the activities initiated for International Space Year, and further support extending these activities to involve more nations in them.

The maintenance of the space environment has been receiving more attention as space activities increase. On many past occasions, our delegation has emphasized the need to keep outer space free of pollution. The increasing quantity of debris in outer space, in certain bands in particular, causes all of us serious concern. We should urgently develop an international understanding on ways in which the amount of space debris can be kept to a minimum, so that it does not pose an unacceptable level of risk to other space objects.

(Mr. Chandrasekhar, India)

There is also a need to develop international cooperation in monitoring and in exchanging information. We note that concern about this subject is common to all delegations, and that many studies are being carried out and many efforts made by various space agencies. In International Space Year, it would be a very fitting gesture if we were to indicate our common concern, and cooperate on this subject by agreeing to include it in the agenda of our Committee, or the Subcommittee, for the very next session.

On the other agenda items dealt with by the Subcommittee, our delegation has already expressed its views on a number of occasions, and we shall therefore not repeat them here.

We consider that the theme chosen for the next session of the Subcommittee, namely, "Space-based communication: the expansion of current services and increased understanding of new systems and the services they will make possible", is quite relevant, in view of the great role of space-based communications in development, and we endorse it.

Mr. ERDENECHULUUN (Mongolia): As this is the first time my delegation has spoken at this session, I wish to take this opportunity to express our deep satisfaction at seeing Mr. Honhenfellner once more in the Chair for this session of the Committee. We are confident that, with his knowledge of the matters in hand and his wealth of experience, the deliberations of the Committee will be guided to success.

Our appreciation also goes to the Chairmen of the two Subcommittees, their Working Groups and the Secretariat staff for work well done during the latest sessions of the Subcommittees.

We extend our felicitations to the delegations of the various countries that have made new and outstanding contributions to the cause of the peaceful

(Mr. Erdenechuluun, Mongolia)

exploration and use of outer space and the promotion of cooperation for the benefit of all countries.

In many respects this is a very noteworthy and auspicious session of the Committee. The overall improvement in the international climate and the growing prestige of the United Nations augur well for an increasingly constructive attitude on the part of the Member States towards the issues on our agenda. The recently announced intention of the leaders of Russia and the United States to reduce stocks of long-range nuclear weapons drastically by the year 2003 provides us with yet another reason impelling us to double our efforts to preserve outer space for exclusively peaceful exploration and to generate wide-ranging international cooperation in this field.

The tenth anniversary of UNISPACE 82 was a fitting occasion for the Scientific and Technical Subcommittee to undertake, at its last session, a comprehensive assessment of the implementation of the UNISPACE-82 recommendations and identify priority areas in which our efforts should be intensified. My delegation fully supports the conclusions of the Working Group of the Whole, and calls for them to be submitted for adoption by the next session of the General Assembly.

The ongoing commemoration of International Space Year has already proved instrumental in demonstrating the substantial prospects offered by space technology for solving outstanding economic and social problems in general and problems in environmental and climatic monitoring in particular. Coupled with the efforts of the Earth Summit, national and international activities for International Space Year have definitely contributed to promoting greater cooperation and more exchanges of view and ideas among scholars and practical minds around the world.

(Mr. Erdenechuluun, Mongolia)

In that context, my delegation wishes gratefully to acknowledge the efforts of the sponsors and organizers of the symposiums held this year during the session of the Scientific and Technical Subcommittee and this Committee's commemorative meeting on International Space Year.

Mongolia's national programme for International Space Year has been focused mainly on the use of space technology for environmental monitoring. A series of studies related to early warning and the reduction of natural disasters and to evaluation of environmental and biological resources is currently being undertaken by Mongolian agencies. Concentrated efforts are being made to set up a catalogue of digitally processed images of Mongolia.

Special emphasis is being placed on keeping the broad public up to date on national and international activities related to International Space Year, as well as on involving Mongolia's higher-education establishments in space application efforts.

The Remote Sensing and Geoinformation Centre of Mongolia, in cooperation with the Earth Observation Satellite Company (EOSAT), organized a seminar last May on the application of remote-sensing data to geological and geophysical exploration.

We are pleased to inform the Committee that from 7 to 11 October this year the thirteenth Asian Conference on Remote Sensing will be organized in Ulan Bator by Mongolia's Ministry of National Development and the Asian Association on Remote Sensing. At the request of the organizers of the Conference, we extend an invitation to all interested States and organizations to attend.

(Mr. Erdenechuluun, Mongolia)

A review of the work of our two Subcommittees over the past year brings us first and foremost to the item on the elaboration of draft principles relevant to the use of nuclear power sources in outer space. My delegation is indeed gratified to note that progress was made in the efforts to forge a better understanding of the principles in question. My delegation, like many others, feels that the time is ripe for the adoption of those prihnciples. We doubt the advisability of reopening a draft principle agreed by consensus after many years of strenuous negotiations.

The draft text of the preamble, combined with the working non-paper prepared by the Legal Subcommittee's Working Group, constitutes in our view a much-needed basis for constructive discussions and possible compromise. It is the hope of my delegation that during its current session the Committee will finalize the principles on nuclear power sources for subsequent submission to the General Assembly at its forthcoming session.

I wish to state my delegation's support for the idea of including the issue of space debris, in conjunction with the question of nuclear power sources, on the agenda of the Scientific and Technical Subcommittee. In our view it is important in the first place to begin by applying our efforts to promote a better scientific and technical understanding of this phenomenon.

Over the years Mongolia has continued to attach priority to the United Nations Programme on Space Applications. We consider it to be an important activity aimed at enabling countries with a limited indigenous technological base and financial resources to develop their own space capability and acquire a sufficient degree of self-reliance in space technology to be applied for the economic and social benefit of their peoples.

(Mr. Erdenechuluun, Mongolia)

Here we wish to express our appreciation to the staff of the Office for Outer Space Affairs and the United Nations Expert on Space Applications for their sustained efforts, despite severe financial handicaps, to promote international cooperation, exchanges and training in the realm of the peaceful exploration and uses of outer space.

Once again the General Assembly placed consideration of ways and means of maintaining outer space for peaceful purposes on our agenda as a priority item. Yet once again, we have to admit that progress in our efforts to forge a broad consensus on this important item has been slow. We urge member States to build on the momentum created by the end of the cold war and start meaningful negotiations in the search for effective ways and means to maintain outer space for peaceful purposes only.

In conclusion, I wish to voice my delegation's support for the current efforts to streamline the working methods of the Committee and its Subcommittees. We hope that the timely initiative of the Legal Subcommittee to reduce its meeting time by one week will be followed by other related steps.

Mr. KOCH (Canada): My delegation would like to join others in thanking the Secretariat for the excellent report on the work of the Scientific and Technical Subcommittee. The report brings out some of the important issues in space science and technology and provides a good overview of the various peaceful uses of outer space. We found the report to be comprehensive, and we are pleased to see that the major activities of the Subcommittee were all included.

(Mr. Koch, Canada)

For the Canadian space programme the past year has been one of steady progress in our major projects: the mobile servicing system for the space station Freedom, the continuing work on the remote-sensing satellite RADARSAT, and the continuing work on communications satellites. The Canadian Department of the Environment is participating in the ozone-hole project, and the Canadian Centre for Remote Sensing is continuing its leading-edge work in its field of specialization.

Canada's main contribution to the International Space Year (ISY) - the International Global Change Encyclopedia, also called GeoScope - was demonstrated to the Science and Technology Subcommittee in February. This unique educational and information tool will be available in November.

The highlight of the past year was the participation of Canadian astronaut Roberta Bondar in the successful IML-1 shuttle mission. She participated in the Science and Technology Subcommittee session in February, together with her German and American colleagues.

The mandate of this Committee is to ensure that space technology will be used for the benefit of all mankind, and it is relevant to ask the question: How can this report of the Science and Technological Subcommittee be used to advance the work of this Committee? Some of the issues that have been raised in this regard are: the trend towards commercialization of space; the space environment; and public safety.

It is my delegation's view, the commercial profitability of a technology is the best guarantee that it will be transferred among countries. It has been Canada's historical experience that the vast bulk of the technology

(Mr. Koch, Canada)

that was transferred to our country was transferred through commercial channels. The space industry will no doubt remain a combination of publicly and privately financed projects for many years to come, but the private sector, under the right conditions, can transfer technology effectively and sustainably. Canada therefore views the increasing commercialization of space technology as a positive development.

Part of the ongoing work on the RADARSAT project was an analysis of the space-debris situation in the orbit the satellite will occupy. Using certain very conservative assumptions, the initial analysis showed that the probability of the satellite being knocked out of commission by space debris during its five-year life span was over 40 per cent. Several design changes have now been made to make the satellite more resistant to space debris, and using so-called worst-case, or pessimistic, assumptions, the probability of being knocked out is now about 10 per cent. I should emphasize that this type of analysis is not yet an exact science, and that a different set of starting assumptions would no doubt have given different results. However, this example does illustrate the price we are already paying for the space-debris situation.

(Mr. Koch, Canada)

The satellite will cost about Can$ 500 million, and if there is a one-in-ten chance that it will be knocked out during its five-year life span, the cost could be construed as $50 million. Increasingly, space agencies will need luck as well as a high level of technical competence in order to make their projects succeed.

As space technology is maturing and some aspects of it are turned over to the private sector Governments and international organizations will increasingly be called upon to safeguard the public interest and to ensure that the environmental costs of space technology are borne by those who use it.

There is a similarity here with environmental problems on Earth, in that environmental-protection measures can raise the cost of products or projects, and government regulation is required to ensure that these additional costs are assumed by producers. In outer space the public interest is, in fact, the interest of all the passengers of Spaceship Earth, and international regulation is required to ensure that the added costs necessary for environmental protection are assumed by the users of outer space. Many delegations have already referred to this important issue. If the international community does not act now, large areas of outer space may become unusable during the next 20 to 40 years.

The Committee has already discussed the issue of public safety very extensively. I think we all agree that it is not a benefit to mankind if man-made space objects return to Earth and threaten public safety - and the problem is worse if there is a nuclear-power source on board. The psychological impact on the general public can be considerable. During the past 15 years there have been three separate occasions when large satellites that were no longer under control returned to Earth, and the media provided

(Mr. Koch, Canada)

regular reports to an anxious public about the possibilities and probabilities of impact. This kind of negative publicity can be very damaging to the cause of space science. The Committee has already achieved substantial results in this area, and we hope that during this session the crowning achievement of an agreement on nuclear-power sources will be attained.

Mr. ENOMOTO (United States of America): The United States welcomes this opportunity to express its views on the results of the last session of the Scientific and Technical Subcommittee. I should like to preface my remarks with a brief overview of some of the highlights of this past year in the United States space programme.

Last month the maiden voyage of the shuttle orbiter Endeavour made history when the crew successfully retrieved the stranded INTELSAT-VI satellite. A dramatic space-walk rescue attempt involving an unprecedented three astronauts succeeded, after two attempts to capture the satellite by a single astronaut had failed. The historic mission gave us invaluable experience and information for the future assembly of Space Station Freedom.

I am also pleased to note the continuing United States efforts in global-change research and environmental assessment from space. In August the TOPEX-Poseidon ocean-monitoring satellite will be launched on the Ariane launch vehicle. This international mission between the United States and France will substantially increase understanding of global ocean dynamics. The TOPEX-Poseidon data-set will serve as the centrepiece of the World Ocean Circulation Experiment (WOCE) and will also contribute to the Tropical Ocean Global Atmosphere Programme (TOGA).

In addition, the mission of the Atmospheric Laboratory for Applications and Science (ATLAS-1) flew in April of this year. This mission, which

(Mr. Enomoto, United States)

benefited from Belgian, French, German and Japanese cooperation, conducted studies of the total energy radiated by the Sun, the variability in the solar spectrum and the key molecular species in the middle atmosphere in order to assess their impact on the Earth's climate and environment.

Finally, I should like to note that the Extreme Ultraviolet Explorer (EUVE) was launched earlier this month by a Delta II rocket. EUVE is designed to conduct an all-sky survey for sources of extreme ultraviolet radiation and to study stellar evolution and the local stellar population.

In one of the most exciting discoveries in an already-eventful year, the Cosmic Background Explorer (COBE) satellite of the National Aeronautics and Space Administration of the United States (NASA) produced significant data supporting the Big Bang theory. It identified variations in the average of background temperature of the universe. These variations are critical to understanding how the universe came to have large clusters of matter, and even of galaxies, alternating with large, lightless voids.

In April the Hubble space telescope, built in conjunction with the European Space Agency, celebrated its second year in orbit. The telescope's accomplishments and recent discoveries have made a significant impact on astronomy. New evidence about black holes, quasars and the life cycles of stars have forced scientists to revamp theories about the origins of the universe.

All of these missions demonstrate the important role and contribution that international cooperation can play in further exploration and use of outer space.

With respect to the business of the Scientific and Technical Subcommittee, I should like to express our delight with the special session

(Mr. Enomoto, United States)

devoted to the International Space Year. This is a significant opportunity to reemphasize the importance of international space cooperation in projects like Space Station Freedom, the Hubble space telescope and the TOPEX-Poseidon mission.

We believe it is fitting to mention that Dr. Abiodun, the Expert on Space Applications, and his staff are to be congratulated for their admirable work over the past year.

With respect to agenda item 9, we recognize that the General Assembly has endorsed the recommendation of the Committee that the Scientific and Technical Subcommittee should give the Programme on Space Applications priority consideration. The record of training-course, seminar and workshop activity in the past year, as well as the report on the development of regional Centres for Space Science and Technology Education, reflects the fact that careful consideration and abundant energy have been given the Programme.

My delegation is pleased to note that the Programme's United Nations International Training Course on Remote Sensing Applications for Environmental Assessment and Monitoring, for which the United States acted as host at the Earth Resource Observation System (EROS) Data Center, was successfully conducted in September 1991. We wish to express our satisfaction with the report of the training course contained in document A/AC.105/499. As a complement to the training course, the United States, in conjunction with the Programme on Space Applications, will act as host to a United Nations International Conference on Satellite Remote Sensing for Resource Management, Environmental Assessment and Global Change Studies, at Boulder, Colorado, in August of this year. The work of Dr. Abiodun and the Office for Outer Space Affairs in organizing these two International Space Year events is greatly appreciated.

(Mr. Enomoto, United States)

We remain convinced that Programme activities can play a significant role in helping nations around the world benefit from space applications and science. We look forward to the success of activities planned for 1992, to learning more of those proposed for 1993 and to continued support of the objectives of the Programme on Space Applications.

It is clear that a substantial part of the work generated by the Committee on the Peaceful Uses of Outer Space for the Office for Outer Space Affairs falls to the Programme on Space Applications. That is why we believe that the Programme must be a priority area of the Office's regular budget.

My delegation continues to maintain the position that additional national research is needed in the area of orbital debris to ensure that we understand the nature and scope of this difficult problem. Over the past five years the United States has pursued a vigorous research programme on orbital debris. I am pleased to note that some of the results of this research will be forwarded to the United Nations Secretariat, consistent with the request contained in the Committee's report of last year.

Mr. GONZALEZ (Chile) (interpretation from Spanish): My delegation would like to place on record its appreciation for the important work that the Expert on Space Applications has been performing. The report prepared by Mr. Abiodun provides a complete, objective and comprehensive view of this field, and my country renews its commitment to continued cooperation with him. We are also grateful for the valuable work that the Outer Space Division has been carrying out under the leadership of Mr. Jasentuliyana in providing the necessary organizational framework and in assisting in the organization and implementation of the Second Space Conference of the Americas. This undoubtedly falls within the context of the implementation of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82).

In an interesting statement made yesterday, I believe the representative of India highlighted the need for convening a new World Space Conference in 1995 in a developing country. My delegation was very pleased to hear that statement, but we feel that it is a kind of contradiction when, 10 years after the world Conference in Vienna, we are still trying to determine how to implement some aspects that, technically, may no longer be relevant. Indeed, the evolution and dynamic changes that have taken place in the field of space technology and their importance to the economic and social development of all countries, Third-World countries in particular; the emergence of new and global issues, such as the environment, and their close connection with the benefits of space technology - all these are new elements that should be examined by the entire world community, as they provide a whole new framework.

(Mr. Gonzalez, Chile)

In my delegation's view, therefore, we should heed the appeal made by the representative of India. The year 1995, with all its attendant symbolism, may be the most appropriate time for a new world space conference to be convened; my delegation agrees that the conference should be held in a developing country.

Mr. ENTEZARI (Islamic Republic of Iran): Before commenting on the report of the Scientific and Technical Subcommittee, particularly in the areas of improving the capabilities of developing countries in relation to space activities, I should like to address the matter of long-term and short-term courses, which greatly help developing countries to enhance the qualifications of their experts and restructure their space-related bodies.

According to Mr. Abiodun's report, the Space Applications Programme has received 18 long-term fellowships, offered by Austria, Brazil, China and the European Space Agency (ESA). My delegation appreciates these offers but emphasizes, with respect to the implementation of the recommendations of UNISPACE 82, that the scholarships offered are not yet sufficient to meet the increasing needs of developing countries. In this regard, we also appreciate any other efforts made by the developed countries to follow those recommendations.

My delegation supports paragraph 7 of the report of the Working Group of the Whole and paragraph 27 of the report of the Scientific and Technical Subcommittee, which request that the Outer Space Affairs Division make every

(Mr. Entezari, Islamic Republic of Iran)

effort to increase the number of fellowships. As far as international scientific and technical cooperation is concerned, my delegation emphasizes paragraph 10 of the report of the Working Group, which requests that the Committee ask all Member States, especially the industrialized countries, to inform other countries of space activities that could be subject to greater international cooperation. In our view, such reporting could increase cooperation among countries and enhance mutual understanding in the peaceful uses of outer space.

My delegation is pleased to inform the other representatives - especially developing countries in the region - that the Islamic Republic of Iran, in line with the implemention of the UNISPACE 82 recommendations, is willing to share with those countries its experience in human-resources development and research-and-development activities. The same applies to space-related subjects such as satellite telecommunications and remote sensing, in particular.

Mr. MAYORSKI (Russian Federation) (interpretation from Russian): The Russian delegation would like to join other delegations in commending the work of this year's session of the Scientific and Technical Subcommittee as well the report presented to us at this session by the Expert on Space Applications, Dr. Abiodun.

We asked to speak in order to recall that it will be necessary for this Committee to give the Scientific and Technical Subcommittee some recommendations. In particular, as we understand it, the Scientific and Technical Subcommittee expects from the parent Committee recommendations regarding the further fate of the Working Group on Nuclear Power Sources in Outer Space, as stated in paragraph 62 of the report of the Scientific and Technical Subcommittee. The Committee, in light of the work to be done on the draft principles on the use of nuclear power sources in outer space, must determine whether the work of the Working Group should be continued at the next session of the Scientific and Technical Subcommittee.

I would like to propose that, at this stage, there could clearly be a break in the work of the Working Group. The scientific and technical basis for the legal principles on which we worked in the Legal Subcommittee and on which we may even work at the Subcommittee's forthcoming session have been worked out sufficiently deeply. The main question of nuclear power sources in outer space remains on the agenda of the Scientific and Technical Subcommittee, and perhaps if no new factors or circumstances arise requiring an even more in-depth expert study of the problem, it is just possible that the Working Group, as of next year, might take a break.

The second recommendation expected from us by the Scientific and Technical Subcommittee relates to the agenda of its next session. We have no serious comments to make on that agenda, especially since we deeply believe in

(Mr. Mayorski,
Russian Federation)

the proverb popular in this country that if it ain't broke, don't fix it. Nevertheless, I do think that if we read the agenda of the next session of the Scientific and Technical Subcommittee without any preconditions, we cannot fail to note the fact that it contains 11 items requiring substantive consideration. The session lasts only 10 working days - and therefore 20 meetings - during which time must be found to have a traditional opening statement, to hold a general debate, and to adopt the report. Thus, if we speak objectively and if we take a scientific and technical approach, the time for a serious discussion of each agenda item in the Subcommittee is realistically unavailable.

Please understand me: this is not a criticism or an accusation of anybody. It is a sad recognition of the facts. There are many items and little time. Therefore, without detriment to anyone's interests, our delegation would like to propose to or rather to ask our colleagues in the Committee whose information may be more accurate whether we should not recommend to the Scientific and Technical Subcommittee that it itself, at its next session, once again analyse and assess its own agenda and decide whether or not to consider, for example, some agenda items over a two- or perhaps three-year period. This way, it could rotate the consideration of various agenda items and consequently the agenda at each session could be shortened by six or seven items.

In order to demonstrate the extent to which we are acting conscientiously here, one agenda item that could be rotated is one which in the past was included on the Subcommittee's agenda upon the initiative of the delegation of the Soviet Union. It is the item on questions relating to space

(Mr. Mayorski,
Russian Federation)

transportation systems. That item, I believe, could be discussed once every two years without any damage to our cause. The same holds true for the items on the examination of the physical nature and technical attributes of the geostationary orbit; on matters relating to life sciences, including space medicine; matters relating to planetary exploration; matters relating to astronomy; and, possibly, even the question of remote sensing, which is currently a priority item. I propose that we consider this, and that we might perhaps include in our report a subtly formulated recommendation allowing the Subcommittee, in a constructive spirit, to approach the question of its own agenda.

Finally, I refer to what is written in the report of the Scientific and Technical Subcommittee on the question of space debris, in paragraphs 102 to 105 of the report. I would like to recall once again the reference in paragraph 104 to General Assembly resolution 46/45, which states that the question of space debris could be an appropriate subject for in-depth discussion by the Committee on the Peaceful Uses of Outer Space in the future.

Let us consider, perhaps in adopting our report, when that future time will come. Is it necessary to bring it forward? Perhaps that future time could be next year. As for the Russian delegation, we would be prepared to support a proposal whereby the question related in one way or another to space debris could be included on the agenda either of our Committee or of the Scientific and Technical Subcommittee.

The meeting rose at 12 noon.

UNITED
NATIONS

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General Assembly

Distr.
GENERAL

A/AC.105/PV.373
7 July 1992

ENGLISH

COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORD OF THE 373rd MEETING

Held at Headquarters, New York,
on Monday, 22 June 1992, at 10.30 a.m.

Chairman: Mr. HOHENFELLNER (Austria)

- Organization of work
- Report of the Scientific and Technical Subcommittee on the work of its twenty-ninth session (continued)
- Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (continued)
- Report of the Legal Subcommittee on the work of its thirty-first session

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The meeting was called to order at 10.45 a.m.

ORGANIZATION OF WORK

The CHAIRMAN: The Committee will continue and conclude this morning its consideration of agenda item 7, "Report of the Scientific and Technical Subcommittee on the work of its twenty-ninth session", and agenda item 9, "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space", after which we shall begin consideration of agenda item 8, "Report of the Legal Subcommittee on the work of its thirty-first session".

I urge all members who wish to speak under item 8 to inscribe their names on the list of speakers as soon as possible.

REPORT OF THE SCIENTIFIC AND TECHNICAL SUBCOMMITTEE ON THE WORK OF ITS TWENTY-NINTH SESSION (A/AC.105/513) (continued)

IMPLEMENTATION OF THE RECOMMENDATIONS OF THE SECOND UNITED NATIONS CONFERENCE ON THE EXPLORATION AND PEACEFUL USES OF OUTER SPACE (continued)

Mr. SAHADE (Argentina) (interpretation from Spanish): I should like to refer briefly to agenda items 7 and 9, report of the Scientific and Technical Subcommittee on the work of its twenty-ninth session, and implementation of the recommendations of the Second United Nations conference on the exploration and utilization of outer space.

My delegation has always supported the work of the Scientific and Technical Subcommittee, since we believe that it plays a special role in the development of research and the promotion of international cooperation in the peaceful uses of outer space. As noted earlier, research and cooperation constitute the main pillars of the Argentine space programme.

We consider that the role of the Scientific and Technical Subcommittee should complement that of the Legal Subcommittee: it should provide the technical elements that permit us to make progress in the development of legal

(Mr. Sahade, Argentina)

norms governing space activities for the benefit of the international community. It is fitting to recall the important contribution made by the Scientific and Technical Subcommittee on the subject of the use of nuclear-power sources, and we hope the relevant draft principles will be adopted in the near future.

In this connection, we are of the opinion that the Subcommittee should in the future concentrate on studying the broad question of space debris; the question of the benefits of international cooperation in the exploration and utilization of outer space; the technical aspects related to the delimitation and definition of outer space, including the Russian proposal to study legal problems relating to space transportation systems; and technical issues related to the geostationary orbit.

This year has been designated as International Space Year, coinciding with the celebration of the tenth anniversary of UNISPACE 82. Although that Conference was an important event, many of its recommendations have not yet been implemented. We are confident that this new positive international era will make it possible to achieve the goals we set for ourselves at that time.

(Mr. Sahade, Argentina)

In this context, we wish to express our interest in the possibility of another meeting being held in the relatively near future to draw a balance sheet of UNISPACE 82 and to implement its objectives. As of now, we can say that we are willing to work actively to implement and organize such a conference.

The Programme on Space Applications, under the very able leadership of Dr. Abiodun, whose report we listened to with a great deal of interest and attention, has excellent human resources and constitutes a potential source of development for those countries that are relatively less developed in the field of space technology. However, this potential is curtailed by the lack of adequate financial resources, which should be increased to allow the United Nations to become an effective tool for the international community's real participation in the steady exploration and utilization of outer space.

Among the activities of the Programme on Space Applications, we would like to underscore as highly significant, because of its impact, the programme for the formation of human resources through regional centres, which we hope will become a reality in the near future.

Mr. NEUHAUS (Australia): As this is the first time my delegation has spoken here, let me congratulate you, Sir, on your chairmanship and thank you for the outstanding leadership you have already demonstrated in this Committee. This is a key session of the Committee on the Peaceful Uses of Outer Space and we look forward, under your guidance, to its being brought to a successful conclusion.

I regret I have not been in a position to speak before and apologize for some absences of last week. This demonstrates no lack of commitment on the part of the Australian delegation, but rather was caused by the sudden birth

(Mr. Neuhaus, Australia)

of my first child, a daughter, last Tuesday. Both mother and baby are doing well.

I am speaking on the report of the Scientific and Technical Subcommittee. Australia, through Professor Carver, one of our most distinguished physicists, has the honour to chair that Subcommittee. I would like to thank those who have already spoken for their kind words of appreciation for the chairmanship of Professor Carver. On his behalf, I would myself like to thank the Head of the United Nations space Office and all the Secretariat staff for their sterling service to him and the Scientific and Technical Subcommittee. Professor Carver recently retired from the position of Professor of Physics at the Australian National University. In his retirement interview, he emphasized his conviction that this would give him more time to devote to the work of the Scientific and Technical Subcommittee, to which he is strongly committed.

Those of us who attended this year's session of the Scientific and Technical Subcommittee can attest to the valuable work it is doing. There were many useful technical presentations and a full agenda. A particular highlight consisted in the panels and activities organized in celebration of International Space Year. Above all, this Subcommittee is a scientific committee. At a time when the new global situation allows so much progress in international cooperation, it is important that space should similarly benefit from such cooperation. The future of our planet depends on it. Space activities relevant to communications and the environment were key elements on the agenda of the Scientific and Technical Subcommittee. Australia supports increasing cooperation between developed and developing countries in these fields.

(Mr. Neuhaus, Australia)

At this point, let me pay a tribute to the work of Dr. Abiodun, and in particular to his tireless efforts in support of regional space Centres. Dr. Abiodun visited Australia late last year in pursuit of this undertaking. Follow-up is continuing with particular interest from the University of New South Wales.

One very important issue on the agenda of the Scientific and Technical Subcommittee was the use of nuclear power sources in outer space. We have before us the report of the Working Group on this matter. Considerable effort has been made over many years to produce principles on the use of nuclear power sources. At the Scientific and Technical Subcommittee, and subsequently at the Legal Subcommittee, a particular effort was made to try and bring these to some conclusion. Australia contributed with others to drafting and sponsoring a compromise Preamble. It is Australia's view that the time has come now to finalize this matter. We recognize that it will probably never be possible to have principles that please everybody completely and that technical developments in space can overtake drafting even as we speak. For that reason, we support an early review process. But for the credibility of this Committee and its future work programme, as well as for the future safety of outer space, it is important that we move to adopt these principles now and move on.

There are other important issues that need urgent consideration. One is the question of the geostationary orbit, which is already on the agenda of the Scientific and Technical Subcommittee. A related issue, which we believe should now become a separate agenda item, is the question of space debris. We hope and expect to be discussing both these issues at next year's session of the Scientific and Technical Subcommittee. With increasing activities in outer space, fuelled by the increasing cooperation - which we welcome -

(Mr. Neuhaus, Australia)

between the space super-Powers of the United States of America and the Russian Federation, the time has come to address these issues in a practical, non-confrontational and multilateral manner. For all countries, whether they launch objects into space or not, whether they own satellites and rockets or not, can be affected by space debris and space-based communications in the geostationary orbit. We note in this regard that space-based communication will be the special theme for the Scientific and Technical Subcommittee in 1993.

In conclusion, let me quote from Alexander Smith: "A man gazing on the stars is proverbially at the mercy of the puddles on the road". This has its relevance to us. We face difficulties with language; we face differing views; but it is essential for those future generations - of whom I am now even more conscious - that we work closely and cooperatively to achieve our goals at this session and make more concrete achievements in the future. Under your chairmanship, Sir, am I confident we will do it.

The CHAIRMAN: On behalf of the Committee, I would like to congratulate the representative of Australia, on the birth of his child. I see that new generations of Professor Carvers are already being created.

Mr. MOUTSOULAS (Greece): My delegation wishes to commend the Office for Outer Space Affairs for the excellent way in which it discharges its duties. My personal appreciation goes to the Head of the Office, Mr. Jasentuliyana, to the Expert on Space Applications, Mr. Abiodun, and to the Office's staff.

Allow me to report to the Committee on activities in Greece that have recently been developed. An Inter-University Cooperation Programme has been approved by the Commission of the European Communities for the academic year

(Mr. Moutsoulas, Greece)

1992-1993, with the participation of universities from Belgium, Denmark, Spain, France, Ireland, Portugal, the United Kingdom and Greece. Our programme aims at restructuring the courses offered by our universities in the fields of environmental studies and land monitoring, with the inclusion of remote-sensing technology and methodology on geographic information systems.

(Mr. Moutsoulas, Greece)

The University of Athens is prepared to accept up to six foreign graduate students each year for research in the field of remote sensing data analysis, with emphasis on ERS-1, SPOT, Landsat-TM and NOAA satellite imagery treatment for geological studies related to active faults; sea pollution monitoring; and forest-fire detection. Tuition advice is provided in English both by University of Athens personnel and visiting experts from eight European countries and the United States of America

The University of Athens wishes to extend that service, which has so far been offered to European students, by accepting students from Mediterranean countries and countries in the adjacent areas, and also from other developing countries. While tuition will be offered by the University free of charge, subsistence expenses can be met through bilateral agreements for scientific and technical cooperation, which Greece has signed with most countries. Moreover, two State fellowships can be offered to cover cases where such agreements do not exist. Details will be filed with the Office for Outer Space Affairs, and the Secretariat is kindly requested to include the aforementioned offer in the report of our session.

Finally, I wish to report that, in May 1993, the METEOSAT data collection system users' meeting, sponsored by EUMETSAT, will be convened at that Eugenides Foundation in Athens. The Hellenic National Meteorological Service is looking forward to strengthening its cooperation with the national meteorological services of countries in our region.

The CHAIRMAN: I now call on the representative of UNESCO.

Mrs. SKOWRON-OLSZOWSKA (United Nations Educational, Scientific and Cultural Organization (UNESCO)): I thank you, Mr. Chairman, for giving me this opportunity to address the Committee on the Peaceful Uses of Outer Space on behalf of the Director-General of UNESCO, Professor Federico Mayor.

(Mrs. Skowron-Olszowska, UNESCO)

An overview of UNESCO outer space activities related to remote sensing, communication, meteorology, hydrology and basic space science is presented in document A/AC.105/491, of 31 October 1991. In view of the participation of UNESCO in the celebration of International Space Year in 1992, the organization has strengthened its remote sensing programmes. These programmes were enumerated at the twenty-ninth session of the Scientific and Technical Subcommittee in March 1992. A current, brief description of the UNESCO remote sensing activities organized so far is contained in document A/AC.105/519, now before the Committee.

In today's statement, I should like to make additional remarks on the recent initiative undertaken by UNESCO concerning outer space activities, namely, the establishment of satellite data centres at the country level as an infrastructure for remote sensing applications. As was mentioned earlier in this session, there is a very high demand for the use of remote sensing technology in developing countries, but this is constrained by limited access to data and insufficient human resource training. We note in particular that many countries have expressed support for the project proposed by the United Nations Office for Outer Space Affairs to establish Centres for Space Science and Technology Education. As one of the specialized agencies devoted to remote sensing applications, UNESCO is pleased to strengthen further its cooperation with the United Nations Office in the investigation of new methods for the transfer of knowledge and technology to Member States.

In this respect, I should like to describe, briefly, the aforementioned new initiative that UNESCO is promoting, that is, the establishment of satellite data centres. A centre is a type of national, specialized data library which makes available to applications specialists their country's

(Mrs. Skowron-Olszowska, UNESCO)

historical and contemporary satellite data. This initiative is complementary with the project of the United Nations Office for Outer Space Affairs to establish Centres for Space Science and Technology Education, because, after undergoing training in the latter, data processing specialists could apply their knowledge in local centres by improving and reinforcing their countries' existing remote sensing data for sustainable social and economic development.

Satellite data centres, with their available satellite data and analysis capabilities, are designed for countries which have no direct receiving stations for Landsat- or SPOT-type remote sensing satellite systems, and no national satellite data archiving system. In the first phase, a satellite data centre will have a national vocation, but, at a later stage, regional contacts will be reinforced through networking and interaction with other initiatives of the United Nations Office for Outer Space Affairs. A centre will provide, at national level, the necessary infrastructure for the efficient and cost-effective use of remote sensing information. It will create a specialized data library based on already archived satellite data as well as on new acquisitions from various national and international space agencies. Three essential elements will be provided by the space data centres which are established in order to ensure the effective and efficient use of space data, namely: skilled remote sensing data processing specialists and applications specialists; digital data processing systems; and satellite and geographic data.

In the process of obtaining old and new data and establishing national multipurpose archives for national resource management planning and development projects, some legal issues concerning intellectual property rights over satellite data could emerge. In UNESCO, the Copyright Division in

(Mrs. Skowron-Olszowska, UNESCO)

charge of administering the Geneva Universal Copyright Convention, adopted in 1952, is analysing these issues in consultation with space agencies that operate remote sensing centres. To date, the space data centre project outline has been sent for evaluation to over 100 remote-sensing-related organizations world wide. Positive comments have been received from specialists in national institutes and also from international and regional organizations.

UNESCO intends to organize technical experts' workshops for the satellite data centre project on a regional basis. The first Techical Experts Workshop for African countries is planned for the end of October 1992.

Mr. BOYER (France) (interpretation from French): I wish to intervene following the intervention of the representative of Australia. I take this opportunity to congratulate him and to express my personal best wishes on his happy event. I found listening to him enchanting, because I always very much admire excellent English, and for a lover of that language, as I am, it was a great pleasure to hear him, and I thank him.

Perhaps the representative of Australia, will forgive me when I say that, while it is very understandable for Australia's representative to give pride of place to the Scientific and Technical Subcommittee among the subsidiary bodies of our Committee, I think - and I believe this was always the idea of the French delegation - that the two Subcommittees must always be careful to cooperate and work in harmony, for the work of one benfits the other, and vice versa. Although there should be healthy competition between the two Subcommittees there should be no rivalry, nor should one have pre-eminence over the other, because the scientific and technical aspects and the legal aspects are equally important.

Clearly, scientific knowledge is absolutely necessary in order to come up with principles and recommendations which are legally valid, but the work of the legal Subcommittee is irreplaceable in that it gives our scientists' recommendations the necessary legal and technical form.

I simply wish to say - and I believe that this arises under this agenda item - that the two Subcommittees must truly work hand in hand. So far we have every reason to be satisfied with the way in which they work together, and I should like to take this opportunity to pay tribute to both.

Mr. HIDAYAT (Indonesia): As I said last week, my delegation attaches great importance to the work of the Scientific and Technical Subcommittee. We should like to express our sincerest wish, in the spirit of

(Mr. Hidayat, Indonesia)

paragraph 51 of document A/AC.105/513, that there be regular meetings between satellite operators and users. This would ensure healthy cooperation between various components in space activities and remote sensing.

Mr. MAYORSKI (Russian Federation)(interpretation from Russian): I should like to express one short thought, at the end of our debate on the report of the Scientific and Technical Subcommittee, in connection with the fact that on the Subcommittee's agenda for its work at the next session there will be an item related to space activities related to the Earth environment, in particular progress in the geosphere-biosphere programme.

It would be advisable to ask the Secretariat, in collaboration with the United Nations Conference on Environment and Development, which has not been totally dissolved, to prepare for the Subcommittee's next session an analytical document showing the role the Subcommittee could play in resolving those problems in connection with the results of the Conference in Rio which has just ended.

I take this opportunity to wish my absent Australian colleague great family happiness.

The CHAIRMAN: We have thus concluded our debate on agenda items 7 and 9.

REPORT OF THE LEGAL SUBCOMMITTEE ON THE WORK OF ITS THIRTY-FIRST SESSION (A/AC.105/514)

Mr. REY (Colombia) (interpretation from Spanish): In my previous statement, during the general exchange of views, I referred to the various subjects on the Legal Subcommittee's agenda. Basically they relate to the use of nuclear power sources and the problem of the definition and delimitation of outer space and the geostationary orbit. We now have an opportunity to elaborate on those subjects as we begin to consider the matters within the

(Mr. Rey, Colombia)

Legal Subcommittee's competence. It is in that Subcommittee that there has been an in-depth analysis of the issues that my delegation is interested in dealing with here.

I apologize if I should speak at some length. It seems to me that it is important to do so because after a year and a half in which new positions have been advanced, on the subject of the definition both of outer space and of the geostationary orbit, this Committee should look positively to the future and chart a course for those working on the questions in the Legal Subcommittee and the various Working Groups.

Looking back to the immediate past, we see that my delegation submitted through the Group of 77 a working paper on the subject of the geostationary orbit. The Russian Federation also submitted to the Subcommittee for consideration a new document on the definition and delimitation of outer space. I shall refer to the second of those issues.

Over the years in which it has been participating in this Committee and the Subcommittees my delegation has expressed its interest in and positive view of the need for a definition and delimitation of outer space. The reasons, well known to all are basically in accord with much that has been said on the matter.

The Russian Federation has submitted to the Committee for consideration a very important document, representing progress in this field, where progress has been somewhat bogged down and there have not been enough developments over the years. The paper has helped by giving us new sources of analysis and new and interesting viewpoints which can help us work towards that definition and delimitation.

(Mr. Rey, Colombia)

My delegation has favoured the traditional formula put forward earlier by the delegation of the Russian Federation to the effect that it might be better to find a legal definition based on technical factors, a process that would, obviously, lead to a compromise solution to the problem, fixing the lower limits of outer space at approximately 100 kilometres. That has been our initial position with respect to this issue, but, open as we are to discussion of the problem, my delegation would not insist upon it. We do, however, wish to express our interest in the document submitted by the Russian Federation and our readiness to pursue this analysis in whatever way the Committee, its Subcommittees, its Working Groups or those submitting ideas may wish. We want to participate in that discussion and bring the matter to a successful conclusion.

Secondly, we come to the subject of the geostationary orbit. It can be no surprise that my delegation should ask to speak to this specific subject, since we have been concerned with it since 1975. The Committee has recently been discussing this issue from another angle put forward at last year's session of the Legal Subcommittee here in New York. We then elaborated upon it at the Subcommittee's session in Geneva and during last year's session of the Committee held at Graz, Austria, where we enjoyed the hospitality of the Austrian delegation and our stay in that extraordinary country, and, today, I should like to dwell on this point and on this item.

There have been two basic approaches taken in considering the subject of the geostationary orbit, one in the Committee on the Peaceful Uses of Outer Space and the other in the International Telecommunication Union (ITU). The ITU elaborated legislation on this subject for the first time in the Malaga-Torremolinos Convention of 1973, which dealt with the orbit of geostationary satellites and the radioelectric spectrum as limited natural

(Mr. Rey, Colombia)

resources that should be used in an effective and economical way. That Convention also sought to guarantee equitable access by all countries to the geostationary orbit and the frequencies of that radioelectric spectrum.

Subsequently, the 1979 World Administrative Radio Conference took up the question of the geostationary orbit and raised for the first time the possibility of planning orbital positions that would take into account the binomial orbit-radioelectric spectrum. On that occasion the principles and postulates of the 1973 Malaga-Torremolinos Convention were used as a basis, but these were complemented by saying that the special geographical situation of certain countries had to be taken into account.

Later, the ITU Nairobi Convention of 1982 took up the text of article 33 of the Malaga-Torremolinos Convention, including the new concepts contained in resolution BP-3 of the 1979 World Administrative Radio Conference, and added an additional aspect, saying that the needs of the developing countries should be taken into account. In other words, new elements have been added in the manner in which access to the geostationary orbit should be dealt with since the Malaga-Torremolinos Convention. Later still, the Nice Convention again took up the issue and reiterated the tenets of the Nairobi Convention.

We are all aware of developments in the Committee on the Peaceful Uses of Outer Space and there is no need to go into it again. We do not have legal texts or principles; rather, we have debates, we have assertions and, at best, we have a stance as to how to deal with the subject of the geostationary orbit, proceedings that remained unchanged until last year, when we, with the Group of 77, proposed a new text.

(Mr. Rey, Colombia)

I should like to dwell on this aspect. I shall not go over the history of our position, since everyone is familiar with it. I should, however, like to emphasize a few fundamental aspects of the informal proposal we have put forward for the Committee's consideration. I do so because I feel it important that we not continue to deal with this subject as a matter of routine or as we have dealt with it for so many years now, perhaps because it was impossible to accept the ideas advanced by a group of countries, including my own. I believe, however, going by what I have heard in the statements of some delegations made following submission of the paper, that these new ideas it sets forth do open the way for a new debate, as well as the possibility for new agreements.

I should like to make a few very clear statements so that there will be no doubt about our position on this question. First of all, we believe that the geostationary orbit, as an integral part of outer space, is governed or should be governed by the norms set out in the Treaty on the peaceful uses of outer space of 27 January 1967. Secondly, although my delegation accepts that as a starting point, in our "working non-paper" we stated that, while it is true that the geostationary orbit is an integral part of outer space and is governed by the principles of the 1967 Treaty, it is also true that when an object is placed in geostationary orbit - which is located at 35,875 kilometres over the Earth's equator - there ensues a phenomenon: it behaves differently because in that orbit satellites remain relatively fixed with regard to Earth, which does not happen in other parts of outer space.

(Mr. Rey, Colombia)

And what is this phenomenon? It is the fact that the object rotates at the same speed as the Earth, so it appears to be stationary. This phenomenon, recognized in all the technical papers prepared by the Scientific and Technical Subcommittee, should lead us to conclude that if in that particular area of outer space physical phenomena occur that are different from those observed elsewhere, then it is logical that sui generis regulations should exist for that specific part of outer space.

Therefore, we are proposing a series of principles that derive from these facts. We are not referring only to special legal regulations - sui generis regulations - but rather, we are suggesting to the Committee some ideas that could be helpful in developing such regulations.

My delegation and I believe, however, that those special legal regulations should definitely include one basic concept: the possibility of developing the legal principles contained in the Treaties of Malaga, Nairobi and Nice and in the resolutions of the International Telecommunications Union (ITU). These deal with the issue of fairness, because we know that access to the orbit is not equitable.

Therefore, we have suggested a formula that may help achieve equitable access. This formula would specify that when two countries have equal claim to the same orbital position, if one is a developing country and the other a developed country, preference should be given to the developing country. If one country has already obtained access to that geostationary orbit and one has not, preference should be given to the latter.

When we talk about preference being given to a developing country, we are not trying to be demagogic in putting forward Third-World claims. All we are doing is elaborating on the ideas contained in the Nairobi Treaty and in the

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Nice Treaty, which specifically note that developing countries should receive special consideration.

None the less, some emphasis has been placed on the notion that, since ITU is already devising a plan for orbital use by geostationary satellites, we in this Committee need not develop special legal regulations or organize the orbit. This is true, but not altogether true. Why? Because if we examine the rules of radio communications and the results of ITU conferences on geostationary-orbit planning, we find only one part of the orbit planned a priori; indeed, the one that is most important to countries in managing their most frequently used telecommunications services has not been planned.

I have often been told, in response to my statements, that ITU already has regulations, that it is already devising plans. So far, though, the only such plans are those contained in appendix 30, 30-a and 30-b of the Radiocommunications Rules: Appendix 30 pertains to radio-broadcasting signals in Region 1; appendix 30-a refers to television link-ups in the 17.3 to 17.8 and 17.3 to 18.1 gigahertz bands for the Regions 1 and 3, as well as the 14.5 to 14.8 gigahertz banks; appendix 30-b contains provisions for the establishment of new bands.

None the less, in connection with article 11 of the Radiocommunications Rules, and specifically as regards the multilateral-plan conference, mention is made of coordination among countries that have problems with their satellite use, but there is no mention of planning. The article refers, with some interruptions, to the 3.7 to 14.5 gigahertz bands, which, at least for us, are the most important bands for telecommunications services.

The fact is that if everything were so well planned and regulated, the

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International Frequency Registry Board might have disappeared because it would have had nothing left to coordinate. But that is not the case; coordination efforts continue in the ITU and we constantly encounter problems in this respect.

Why am I placing so much emphasis on this? Are there really that many problems and controversies? Yes, indeed there are, and my country itself has encountered such problems. The ITU report contains a registry of the satellites for which frequencies have been requested and/or assigned. When my country at one time submitted to ITU an early report on its satellite system, objections were raised by another country that needed to use exactly the same orbital position. We began the process of coordination. We had followed the ITU rules; we had submitted our reports in advance. And while all of that was happening, the other country went ahead, launched its satellite and placed it in orbit. There was no appeal available to us; there was nothing we could do. In effect, we were told to go to the devil!

So do mechanisms exist to settle such disputes? Who knows when such a process would have been completed? We are not talking about old issues of sovereignty. We were asking only that the Radiocommunications Rules then in force be applied to us. Those rules were not applied, though, and ITU did nothing.

That is just one of the problems dealt with in the paper that we have submitted.

I know that I am taking up too much time, which is not fair to the Committee. To sum up, in our document, which is based on the earlier paper that was submitted, we attempt to reflect all the concerns that have been raised, and all the observations that have been made, on the subject during

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the past year and a half. We also attempt to claify matters and, in brackets, we include the proposals presented by China and Pakistan at the meeting of the Legal Subcommittee in Geneva.

(Mr. Rey, Colombia)

Naturally, we had agreed that the proposals would be studied and put in verbatim as made by China and Pakistan. Of course, we ourselves might have some comments to make on these proposals, and we may do so in due course.

We consider it very important that the proposal Argentina appears to wish to make on the question of space debris be included, because we believe that our consideration of this subject should also include consideration of the subject of space debris.

In conclusion, all I am trying to do in my long statement - and I apologize again to all members of the Committee for its length - is to draw attention to our attempts to take a new, open approach that could serve as a basis for possible future agreement on a special legal regime. I wish to state that my delegation is prepared to listen to and discuss any suggestion based on new ideas that truly break from the past.

Mr. HIDAYAT (Indonesia): I should like to express my delegation's views on the general problem of space benefits. We all know that while climate modelling gives us subtantial information about the future climate, there are many uncertainties regarding the many atmospheric parameters. My delegation would like to question the response of the climate system to the forcing of atmospheric trace gases. These uncertainties are, first, the transient adjustment controlled by ocean-heat uptake; secondly, the snowcover on land and ice in high altitudes; and thirdly, the change in cloud radiative properties and the shift in regional patterns connected to the ocean and land surfaces, and the internal dynamics of the atmosphere. Our Government therefore attaches great importance to space research efforts to increase the certainty of climate predictions. In this regard, these efforts would provide efficient and large-scale data gathering covering many areas.

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I would like to add the following. The climate system is like a ticking clock, which can be clearly seen in the signature of the El Niño phenomenon. The discovery of the two-year "ticking" in the record of climatic trends fuels the growing interest of many in biennial climatic variations, be it as regards heat relaxation or other ways of dispersing excess energy into the land-ocean-atmospheric system. Studies have shown the importance of in situ measurements - for example, to be specific, in Indonesian waters - as a means to check if not to monitor the theoretical global change phenomenon. We would therefore like to note the elevation of endogenic capabilities in this area.

Many of us are aware that the one constant of the Earth system lies in the changes that occur constantly. Changes can occur on the order of cosmic time scales and magnitudes. These have brought the Earth and its thin smear of atmospheric gases to where they are now. Viewed from afar, the gaseous envelope of the Earth looks like a thin membrane, but it is an active part of the system and created within it are a structure and balance of gases that are essential to maintaining life.

Within the Earth system, two apparently very different environments prevail. One is the world of the ecosphere; the other is the world of everyday life, about which many of us know that laws relevant to its maintenance have been passed. Here, the closed and finite nature of the Earth recedes into myth as we busy ourselves with events on a human scale in a seemingly infinitely small world. But of course, we cannot overlook the anthropocentric view.

One of the questions that comes to mind is the hazard of large explosions due to the possible impact of asteroids and, possibly, comets. I might hastily add in this connection that there is a likelihood of a natural catastrophic collision. It is low but not completely negligible. Moreover,

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the magnitude of the catastrophe could be large. The explosion due to the impact of an asteroid should not be mistaken for an attack by a neighbouring enemy.

My delegation endorses the studies concerning all work that tries to uncover the hidden secret of the interaction of various forces that shape the active biosphere. We also consider important the study of fast-moving objects in the atmosphere in providing an early-warning system for the well-being of the Earth system. To achieve this, certainly, international cooperation is needed.

I would now like to second our colleague from the Colombian delegation in his suggestion that the study of the geostationary orbit be continued in a more practical way in this Committee. We believe that the International Telecommunication Union deals primarily in the technical aspects, and we would like more latitude in the Committee to deal with the geostationary orbit.

Mr. FULDA (Germany): Allow me to make a few remarks about the fruitful and constructive negotiations held during the thirty-first session of the Legal Subcommittee. As in previous years, three substantive items were on its agenda. Following an earlier recommendation that these be rotated each year, the Legal Subcommittee began by considering agenda item 5 concerning the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interest of all States, taking into particular account the needs of developing countries. Without dwelling on the preliminary exchange of ideas on the provisions of the working paper submitted to the Legal Subcommittee by 9 developing countries, I should like to make two comments on this agenda item that my delegation deems essential.

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First of all, it seems important to us in this context to acknowledge the fruitful cooperation which already exists between developed and developing countries in the field of the exploration and utilization of outer space. Thus, our task is not to enforce cooperation but to develop a general framework for mutually fruitful and beneficial cooperation that is in the interest and for the benefit of all States.

Secondly, I should like to refer to a concrete suggestion made by my delegation during the session of the Legal Subcommittee in Geneva. My delegation believes that one way of meeting the special needs of the developing countries would be to consider the possibility of drafting model contracts for projects of international cooperation and to study existing contracts that have been published.

(Mr. Fulda, Germany)

In this context, I should like to draw attention to a three-volume publication, comprising about 1,800 pages, entitled "Space law: Basic Legal Documents". The editors of these volumes are Professor Böckstiegel and Dr. Benkö, both from the Institute of Air and Space Law at Cologne University. Two of these volumes have already been presented to the Secretary-General to support the work of this Committee. Volume 3 will be presented during the present session.

Allow me to make a few remarks on another item on the agenda of the Legal Subcommittee, namely, matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure a rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union (ITU).

My delegation believes that trying to force a delimitation without a solid basis for determining the relevant criteria would certainly interfere with the principle of the rational and efficient use of both airspace and outer space. We are convinced that any delimitation of airspace and outer space now would impede the further development of space technology and, by extension, the use of outer space.

With regard to the geostationary orbit, my delegation believes that the Legal Subcommittee should take due account, in its deliberations, of the relevant activities of the ITU. I should like to point out that my delegation feels that the ITU has already taken appropriate measures to ensure all countries of practical, equitable access to the geostationary orbit in the, most important field of satellites - radiocommunications. We are of the opinion that outer space and, in this instance, the geostationary orbit should

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be used in a rational and efficient manner and in accordance with international law. But, any move that could undermine the equilibrium the ITU has arrived at in regulating the use of the geostationary orbit in an equitable and efficient manner should be avoided, not only by the ITU itself, but also by the Legal Subcommittee.

Lastly, I come to the most important of the agenda items that were under consideration during the thirty-first session of the Legal Subcommittee, namely, the elaboration of draft principles relevant to the use of nuclear power sources in outer space, with the aim of finalizing the draft set of principles at the current session.

Permit me to make a few basic points. We are convinced that the text contained in the German-Canadian paper (A/AC.105/C.105/L.154/Rev.11) is the best and the definitive formulation. We realize that until recently not all delegations were able to agree with this assessment. Amongst the elements contained in the paper by the Chairman of the Working Group that go beyond the German-Canadian draft, there are two that we can accept only if, by so doing, we clear the way for a final consensus. With the prospect of agreement by all delegations in mind, we have declared our willingness to approve a revision clause which would reopen the discussion after a very short period, and we are prepared to agree to a rule which would limit the application of this catalogue of principles to those technologies which are comparable with those already in use.

In our opinion, the development of new technologies should, from the outset, be conducted with technological designs in mind that reduce rather than heighten the risks for people on Earth. It is precisely because this catalogue of principles is intended primarily as a set of guidelines for the

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designers of future technologies that we find it difficult to limit it to the current state of the art as envisaged.

The revision clause, on the other hand, was originally meant to be an instrument for reshaping our rules in response to unforeseen technological developments. The relevant period, therefore, should correspond to generations of technology marked by major changes in the techniques applied. Ten years, to our mind, is a short enough period for us to be able to react adequately to principally new techniques and is just long enough to ensure a certain stability of the agreed principles agreed upon.

If we nevertheless accept the two-year period proposed in the non-paper by the Chairman of the Working Group, we do so in response to the wishes of many delegations. We cannot agree, however, to both compromise elements unless they are part and parcel of a comprehensive compromise and serve to bring about a general consensus on these principles. We did not find it easy to make these concessions, but we feel that, after 13 years of discussion, it is time to conclude the subject.

The other methodological approach known to us envisages in particular the replacement of the maximum dose limits at present laid down in Principle 3 by a risk concept based on probabilities. We have yet to hear arguments that demonstrate the advantage of replacing those dose limits by a principle based on probability calculations. The careful stipulation of limits is at the core of Principle 3, and is part of the delicate compromise that has been sought for over a decade. The work done over all these years must not be destroyed by overturning a consensus that is already in place.

The most important reason for adhering to this consensus is the following: the re-entry of a satellite bearing a nuclear power source may happen in numerous places. It is relatively unlikely that the user itself

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will be affected by any accident. On the contrary: in all likelihood, the damage will occur in a country that neither launched nor used the carrier of potential damage. We must not nullify all the efforts of the past decades to put more emphasis on the causer's responsibility, and we must provide those not involved with clear-cut protection. It is impossible to provide a political rationale for reversing this trend, nor can it be made comprehensible. However, there will be ample room for further technical consideration in the course of the revision process provided for under Principle 12.

What had to be discussed has been discussed at length. We do not see any new language. Intensive and serious negotiations have produced a compromise text which requires from all delegations present here a very simple reaction: yes or no. Our answer is yes.

Mr. CHANDRASEKHAR (India): The Legal Subcommittee's work assumes importance in the light of its guiding and regulatory role in the activities of States in the exploration of space and space activities to ensure that those activities serve the purpose of promoting healthy international cooperation by regulating the applications of technological developments and ensuring access to the benefits of outer space for all States.

India, as a nation with a deep interest and involvment in the exploration and use of outer space for the purpose of its own rapid development, has always been keenly interested in the further development of outer space law and has participated actively in the work of the Legal Subcommittee. That is why we are interested in making rapid progress on the agenda items currently being discussed in the Legal Subcommittee. Also, our deliberations have, in the past, shown that there are several areas where current international law needs further elaboration and updating.

(Mr. Chandrasekhar, India)

First, turning to the work of the Legal Subcommittee at its thirty-first session, our delegation notes with satisfaction some progress, although consensus was not scored on many outstanding questions. However, on the question of the use of nuclear power sources (NPS) in outer space we are very much closer to the solution. It is our hope that during the Committee's current session further efforts will be made to achieve consensus in a spirit of cooperation and compromise.

Our delegation has expressed some of the concerns relating to the remaining principles in the Legal Subcommittee. With regard to the safety assessment, there is a need to foresee various situations and rationally define the responsibility for this assessment. When the manufacturing State for NPS differs from the State which procures or makes the space object, or when both of these differ from the State from whose territory the launch takes place, or in any of the possible situations, the proper safety assessment has to be ensured, as must the necessary cooperation or obligation of all concerned States.

On the question of the review of these principles, our delegation also recognizes the need for a periodical review or a review contingent upon changes in certain bases adopted, such as International Commission on Radiological Protection guidelines. However, in the view of our delegation the two-year term proposed for review seems to be short. On this agenda item we are very keen to work with all delegations to reach consensus, and assure our cooperation.

Turning to the agenda item on outer space benefits, we are happy to note further substantive discussions in the Legal Subcommittee's last session. We attach great importance to this subject, and in this connection draw attention

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to the working paper submitted by several developing countries, which in our opinion provides a very good basis to deal with this subject.

For pursuing peaceful uses of outer space, particularly through the development of indigenous capabilities in developing countries, international cooperation in terms of availability of components or equipment and of technology and information, is not sufficiently guaranteed. The embargoes and other restrictions on the availability of such components, even when the end use for peaceful space applications is guaranteed, hampers the promotion of international cooperation, and this works against the interests of developing countries. Hence this situation needs to be redressed urgently. This is not to undervalue the significant amount of international cooperation which has taken place in outer space activities, but impediments to the pursuit of beneficial space activities indirectly deny access to space. Thus they dampen the true spirit of international cooperation and restrict the availability of its benefit for all. We hope that we shall reach common understanding on the various principles related to international cooperation, as addressed by this agenda item, and evolve legal measures internationally.

On the question of the definition and delimitation of outer space and the character and utilization of the geostationary orbit (GSO), we note that the Legal Subcommittee had a further useful exchange of views during its thirty-first session. While we have been looking at the legal aspects relating to the questions, we have been dealing with two aspects, namely, the definition of outer space or the GSO, on the one hand, and the legal aspects related to their usage, including the question of delimitation and the questions related to access, on the other. As the characteristics and the modes of usage of space objects have been undergoing changes, there have been difficulties in finding agreement on various issues, and there have been

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questions on the very need for definitions. However, in the opinion of our delegation, these difficulties should not deter us from the exploration of common understanding and they should not make us leave the questions to be settled by events. It is our hope that the working papers before the Legal Subcommittee will be considered in this spirit and that we shall make further progress on the various questions raised.

Mr. VALENCIA (Ecuador) (interpretation from Spanish): The delegation of Equador wishes to make the following comments on this agenda item, related to the work of the Legal Subcommittee.

First, Ecuador joins other delegations in emphasizing the importance of completing without further delay the negotiation of principles on nuclear power sources in outer space. We made observations about this in our statement in the general exchange of views.

With regard to the delimitation of outer space, the delegation of Ecuador very much welcomes the submission of the Russian Federation document. Its observations about possible problems in the future because of lack of legislation on journey between outer space and the Earth by reusable vehicles reflects a series of concerns raised in this Committee and its Subcommittees and adds to them others resulting from the experience of the Russian space programme. As a result of what happened at the last session of the Legal Subcommittee, we may be sure that the Russian Federation document will generate an instructive debate, and we hope that it will serve to guide the Committee in deciding what steps to take in this respect.

It is well known that Ecuador contends that it is necessary to define a boundary between the atmosphere and outer space. Of course, for legal purposes that boundary should constitute a "legal presumption" freely agreed through negotiations between States. The adoption of an agreement on the

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delimitation of outer space would avoid conflicts that might arise in the future because of a lack of an international convention in this regard.

With regard to the geostationary orbit, Ecuador followed with interest the fruitful discussion during the last session of the Legal Subcommittee on the basis of the informal working paper submitted by a number of developing countries. Ecuador appreciates the positive elements in the paper and particularly its positive approach. We noted the statement this morning by the representative of Colombia and we welcome Colombia's decision to submit a new version of the working paper, enriched by contributions from other delegations. To a great extent we share the concerns expressed by the delegation of Colombia this morning on this matter, illustrated by a factual example showing the need to find new ways to go beyond the restrictive technical mandate of the International Telecommunication Union (ITU) in its statutes.

On the same subject of the geostationary orbit, other delegations have already mentioned here the need to look beyond the present. This scarce natural resource is in danger of saturation. Its uses are not confined to the field of telecommunications. There have also been warnings of a specific problem: space debris in the orbit, a problem with implications that are not only technical, but also ecological. Therefore, and in order to protect the possibility of use of the orbit in the future by peoples that do not now have the technological capacity or social need to use it, Ecuador believes that it is necessary for the international community, through this Committee, to begin the negotiation of a special legal regime constituting a code of conduct on matters having to do with the geostationary orbit. For all the reasons I have given, Ecuador believes that the legal regime to be negotiated should protect the future rights of the developing countries, including those whose situation

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is special, whether because they are located in the equatorial zone or for other geographical reasons. In the drawing up of legislation for the proposed regime it will be necessary, we believe, to have the very useful technical advice of the ITU.

Lastly, in connection with the benefits of space exploration, my delegation is pleased with the ongoing work of the Legal Subcommittee. We greatly appreciate the working paper submitted by a number of developing countries. We believe that negotiations are going in the right direction and that they will lead us to a consensus agreement without major delays, such as those unfortunately experienced on other items on the Subcommittee's agenda. The delegation of Ecuador repeats its willingness to cooperate in progress on this and other outstanding issues.

Mr. GONZALEZ (Chile)(interpretation from Spanish): After listening attentively to the statements made this morning with regard to the items on the agenda of the Legal Subcommittee, my delegation believes that we may be witnessing an important and positive trend, particularly in connection with the item dealing with the geostationary orbit.

For the past two years, the delegation of Colombia has been making invaluable efforts to resolve the difficult and complex problems inherent in the geostationary orbit and pave the way for future agreement and consensus. We believe that the statement made today by the representative of Colombia contained important elements that should be made the subject of future consideration in a positive framework. Recognition of the role of the International Telecommunication Union (ITU) is important, as is the idea of equitable and guaranteed access to the geostationary orbit by developing countries.

It is contrary to the principles of international law for a strategic resource of such magnitude, one that can have so important an impact on the future of the world, to be reserved for the technologically advanced countries. The Legal Subcommittee ought, therefore, to establish a framework of general rules that can accommodate the concept of equity, one of the basic principles of international law. In this connection we believe that the Colombian delegation has provided us with guidelines that should enable us to move forward on the basis of legislative norms rather than imposed political positions.

In connection with the benefits to be derived from the exploration and utilization of outer space, we believe that at last meeting of the Legal

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Subcommittee the Working Group on that agenda item made important progress on the basis of document A/AC.105/C.2/L.182, which happened to be submitted by members of the Group of 77. As I and many of the sponsors said at Geneva, we would welcome the participation of other countries, and the intention still is to submit a revision to the document that will reflect the expectations of all countries. As far as my delegation is concerned, document A/AC.105/C.2/L.182 was only a working paper. Indeed, no alternative document was submitted in Geneva. We must therefore continue to work on the basis of that document and enrich it with whatever additional ideas may emerge.

With regard to the question of delimitation of the geostationary orbit, everyone is aware of my delegation's position: We feel that a good solution might be found in the proposal made by the representative of the Russian Federation. It may help us to surmount some of the obstacles that have hitherto appeared insuperable, and should also inspire us to do some serious thinking.

Lastly, we wish to support the palpable efforts being made towards the adoption at this session, of a set of draft principles on the use of nuclear power sources in outer space. This is a subject that can brook no further delay. Negotiations have gone on for many years now, and various details have been worked on and polished; we have witnessed the important efforts made by the sponsors. You yourself, Mr. Chairman, have worked very hard to achieve agreements that could help us to reach consensus. Of course, to be valid, those draft principles - or any set of draft principles - must be based on consensus. My delegation therefore reiterates that the Committee must, at this session, adopt a set of draft principles on the use of nuclear power

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sources in outer space so that those draft principles can then be endorsed by a resolution of the General Assembly.

Mr. MAYORSKI (Russian Federation)(interpretation from Russian): I should like to thank the delegations that have spoken for their assessments of the working paper submitted by the Russian Federation at this year's session of the Legal Subcommittee (A/AC.105/C.2/L.189). We do not deserve all the praise given us for submitting that document. Our goal in doing so was a humble one: First, we wished to show that there were possible alternative approaches to a question with which the Legal Subcommittee had been dealing for many years - without, by the way, much success. Secondly, we wanted to show that, as space technology developed, additional and very serious legal questions could arise, questions that would require an answer sooner or later.

For the moment, we have been unable to come up with answers, but we have managed to put questions. Those questions now exist, and perhaps at the next session of the Legal Subcommittee the Russian delegation can try to answer some of them, if only partially, and make proposals.

(Mr. Mayorski, Russian Federation)

Secondly, I should like to endorse the view of the representative of Chile, that the important statement made today by the representative of Colombia contained a number of new elements that deserve our careful attention. It is no secret that over the 15 or 18 years during which the Legal Subcommittee has been dealing with the issue of geostationary orbits, the major stumbling block has frequently been the position of the equatorial countries and their original, perhaps arbitrary, interpretations of provisions of the 1967 Outer Space Treaty; but that - as was noted by the representative of Colombia - is history.

I wish now to address myself to three of the points he made, and I think we should attempt - if not at this session of the Committee then maybe at the next session of the Legal Subcommittee - to come up with a consensus opinion on these and so establish a starting point for further work.

The first element is the acknowledgement that the geostationary orbit (GSO), no matter how we define it, is inseparable from outer space. Moreover, it is hard for me to refer to the GSO as part of outer space, because that orbit is only a track in outer space - nothing material. That is precisely why the term used by the ITU, which has been repeatedly cited here today, is not "geostationary orbit" but "geostationary orbits" - plural - of artificial Earth satellites". Whatever name we give it, however, there is a part of outer space in which there are geostationary-orbit satellites, and that part of outer space is inseparable from outer space. If we accept that as fact, then it seems to me that we have taken a significant step forward in comparison with our earlier debates.

The second important element in the statement of our Colombian colleague is the acknowledgement that the 1967 Outer Space Treaty is fully applicable to the geostationary orbit, no matter how we define it; that the geostationary

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orbit is exempt from national acquisition and that it should be used in the interest and for the benefit of all States, regardless of their level of development. To me, that represents another major step forward.

Finally, it was acknowledged that what makes the GSO a unique natural phenomenon is that it is governed by the laws of physics: if an object, such as a satellite, is at a certain altitude in outer space, if its orbit is circular and is directly over the plane of the equator, a specific phenomenon occurs, related not only to the object's speed and the rotational velocity of the Earth: it stands still over a specific point above the equator. That phenomenon is sufficiently unique, original and useful to justify the development of a separate set of legal regulations relating to the use of geostationary orbits.

I suggest that we suspend today's discussion of the matter at this point, and that we consider starting a new stage in our work, on legal problems relating to the use of the geostationary orbit, taking into consideration the three aforementioned acknowledgements. If we succeed in doing that today or at the next session of the Legal Subcommittee, then further discussions will, I think, be much more productive and useful.

In connection with the draft principles for the use of nuclear-power sources (NPS) in outer space, my delegation, like many others, feels that it would be extremely desirable to finish work on the document this year. This has been our point of view for the past three years, since the objective preconditions for completing this work without further delay existed three years ago. The basic material having already been prepared, what is required now to complete our work is political will, not further discussions.

The meeting rose at 12.30 p.m.